

slide 3  
Distributed File System  
-DFS-

- what are file system Management task ?
  - Naming and Locating a file.
  - Security and Protection.
  - Accessing file (read-write-delete----).

- Meaning of Distributed File system :  
a file system with distributed storage on Multiple machines.

- Distributed file system Requirements :

1 - transparency 

2 - Replication

3 - Fault tolerance

4 - security

5 - efficiency (speed)

Access Control List (File Permissions)

Capability List (user Permissions)

# - What are Models of File Service ?

## File Service

### upload/download Model (cached system)

- client download the file and make changes on it then upload it to the server back (may cache it for future request if it's repeatedly accessed).

advantage :

- 1- Reduce Network traffic
- 2- Fast by using cache

disadvantage :

- 1- client storage may be small
- 2- inconsistency problem between cache and the server.

### Remote Access Model (remote system)

- client execute operation on the server

advantage :

- 1- better for small storage of users

- 2- No consistency problem

disadvantage :

- 1- overhead network traffic
- 2- take time for every request of file.

- Comparison between caching on disk and on Main Memory :

disk advantage : More Reliable since if ~~ensth~~ something wrong happened to Machine and it's Powered off, we don't need to fetch data again from server, we get it from disk.

Main Memory advantage : quickly Accessing data so the performance is better.

- two Approach of consistency :

- client-initiated : the client is responsible for check the two file one he has and the other on the server is the same.

- Server-initiated : the server is responsible for check  
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- what are cache-update Policies :

1- write-through: ~~any client make~~  
~~the file process on the server~~  
the client send any changes  
he made on the file to the  
server immediately.

2- Delayed-write: the client make changes on his  
cache and later send it to the  
server, so if his machine crashes  
we lose the data.

3- Variation 1 : for every time period, send changes  
to the server

4- Variation 2 : send file changes to the server  
when you close the file.

- Mention two file services states 2

↓  
stateless

No client-specific information kept on the server after user ends the session

↓  
stateful

the server has information about the client between sessions since the client has unique identifier

### Failure Recovery

doesn't know if a failure happened and begin a new session when you request.

Resume your old session by restoring old state by your identifier.